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(54) **Rotatable workpiece support including cylindrical workpiece support surfaces for an ion beam implanter**

(57) In accordance with the present invention, an ion implanter (10) including a rotatable support (110) disposed in an implantation chamber (17) of an ion beam implanter (10) for supporting a plurality of wafer workpieces (100). The rotatable support (110) includes a hub (112) adapted to be rotated about an axis of rotation (CL) substantially parallel to a direction of an ion beam beam line (18) entering the implantation chamber (17). The rotatable support (110) further includes a plurality of wafer support members (120) adapted to be attached to the hub (112), each wafer support member (120) adapted to support at least one of the wafer workpieces (100). Each wafer support member (120) includes an attachment structure (150) for affixing the support member (120) to the rotating hub (112) and a wafer support pad (130) extending from the attachment structure (150) and passing through the beam line (18) as the hub (112) rotates. The wafer support pad (130) includes a wafer support surface (132) facing the beam line (18) that includes a concave portion. Preferably, the concave portion of the wafer support surface (132) is cylindrically shaped and a central axis of an imaginary cylinder (IC) partially formed by the concave portion intersects an axis of rotation (CL) of the hub (112). A radius of curvature (R) of the concave portion is large, for a 300 mm. disk shaped wafer, the radius of curvature (R) is 7 meters. Each wafer support member (120) further includes a clamp (200) for releasably securing a wafer workpiece (100) to the wafer support pad (130). Upon rotation of the hub (112) at a predetermined angular velocity, the workpiece (110) conforms to a shape of the concave portion due to a component of centrifugal

force normal to a surface of the wafer support surface (132).

